

Energizing South Carolina

South Carolina Energy Office
Annual Report
Fiscal Year 2009



Table of Contents

The South Carolina Energy Office: On a Mission	2
A Message from the Director	3
Stimulus Funding Providing for Energy Efficiency, Renewable Energy Projects	4
Saving the Green: Energy and Money	5
Did You Know? A Collection of SCEO Quick Facts	6
Public Institutions Charged with Reducing Energy Turn to SCEO for Help	7
Effort to Make Manufactured Homes More Efficient Sees Success	8
Wind Energy Taking Off in South Carolina	9
Renewable Energy Projects in South Carolina	10
SCEO Spreads the Word on Going Green	11
Energy Continues to Ignite Interest	12
State Reshapes Radioactive Waste Program	13



The South Carolina Energy Office: On a Mission

South Carolina has almost no conventional energy resources of its own. It has no oil, coal, uranium or natural gas. So instead of relying on distant states and countries for its energy, our state and its citizens need to practice energy conservation and efficiency as well as develop alternative sources of energy right here in the Palmetto State. These efforts would improve our economy, create jobs, increase our energy security and preserve the environment.

Sound impossible? We don't think so.

For decades, the South Carolina Energy Office (SCEO) has provided a broad range of resources designed to help citizens, businesses and public entities save energy and money while using clean, renewable energy resources.

Since becoming part of the SC Budget and Control Board in 1992, the SCEO has helped save the state over \$320 million through:

- Workshops, training initiatives and technical assistance for builders, architects, businesses and facilities managers
- Financial assistance for school districts, state agencies, non-profit organizations, public colleges and universities
- Energy conservation planning for state agencies, school districts, public colleges and universities
- Presentations, exhibits and energy publications
- The SCEO Web site, www.energy.sc.gov
- Tax incentive information, statistical analyses, energy utility information and energy policy assistance
- Information and assistance for businesses, industries and non-profit organizations
- Energy emergency response and preparedness
- Radioactive waste management

Although South Carolinians currently spend over \$20 billion annually on energy, such a drain on our state's economy can be reduced through energy efficiency, energy conservation and renewable energy. The SCEO is dedicated to helping South Carolina better use that \$20 billion now and in years to come.

A Message from the Director

America is riding the crest of an unprecedented tidal wave of interest in advancing the cause of clean, domestically-produced energy and energy efficiency. The challenge for South Carolina is to be on top of the crest, realizing all its benefits, rather than wallow in the trough.

The reasons for the enormous interest are three-fold: national security, environmental consequences of fossil fuel use, and, very importantly, the economic consequences of our energy use patterns.

These are all solid bases for Palmetto State concern. We are dependent on external sources for virtually all of our energy needs; the state's rich natural heritage, which makes South Carolina such an attractive place to live, is threatened by the consequences of fossil fuel use; and our struggling economy needs the shot in the arm that can be provided from reaping a robust share of the mushrooming green job market, in addition to diverting in-state disposable income from economy-draining fossil fuel costs to economy-bolstering alternative uses for dollars saved through energy efficiency.

The recently passed federal stimulus package makes massive new financial resources available to South Carolina to develop energy efficiency and other forms of clean energy. More financial resources and more legal imperatives for clean energy will arrive when Congress passes comprehensive energy and climate legislation. Never in history have we had such a perfect storm of ample financial resources for clean energy and solid public recognition of the national security, environmental and economic desirability of clean energy.

It is my fervent hope that South Carolina will seize the massive clean energy opportunity before us and ride the crest of the green tidal wave that will most assuredly come whether we are on top of it or not. Leadership in clean energy can be our economic savior, while clinging to the old ways of doing energy things will cause our state to replicate the "business as usual" experience of the Detroit gas guzzler syndrome. In capitalizing on opportunities clean and green, we need to lead the Sun Belt, not follow the Rust Belt.

The 2008-2009 Annual Report summarizes some of the recent accomplishments of the South Carolina Energy Office in its mission to increase energy efficiency and diversity, enhance environmental quality and save energy dollars for South Carolina. We've had a good year, but the best is yet to come.

John F. Clark

Director of the South Carolina Energy Office



Stimulus Funding Providing for Energy Efficiency, Renewable Energy Projects

When the SCEO learned it would be responsible for overseeing a sizable chunk of federal stimulus dollars, it hit the ground running.

As a result, the office is already busy administering over \$64 million in federal funding for energy projects aimed at helping public entities reduce energy bills, saving much needed money for agencies and taxpayers.

School districts, public colleges and universities and state agencies will share a total of \$40 million in the form of grants and no-interest loans. These awards will help reduce the burden of energy bills for taxpayers, improve energy efficiency, create and retain jobs and reduce greenhouse gases.

This means real changes for some schools that couldn't have afforded necessary improvements otherwise, like Florence School District 5 in Johnsonville which will finally be able to upgrade seven outdated, energy-wasting HVAC systems.

It also means real savings for taxpayers. Johnsonville will save \$323,000 over the life of these units. For a small town in rural South Carolina, that's a noticeable decrease in their energy bill.

Eligible projects include retrofits for energy ef-

ficient lighting, heating and air conditioning systems and energy management systems. A revolving energy loan program is also being created that will support cost-saving energy improvements for years to come.

But schools, colleges and state agencies won't be the only ones to benefit from the funding.

The SCEO is also administering about \$6 million in stimulus-related funds to help local governments improve energy efficiency and reduce energy use and fossil fuel emissions through a variety of measures.

The SCEO will also receive \$600,000 for energy emergency preparedness and response improvements from a three-year federal grant. The SCEO is working with representatives from a number of other state agencies to prepare the state for fuel shortages like the ones experienced in recent years when hurricanes took oil refineries offline for weeks at a time.

Homeowners also stand to benefit from a rebate program for energy-efficient appliances that will be put into place in early 2010 using \$4.3 in federal stimulus funds.

Looking for even more ways to help, the SCEO also developed plans to use stimulus funds for:

- Renewable energy and transportation grants
- Energy efficiency and conservation in residential and institutional buildings
- Industrial incentives
- Business and institutional technical assistance
- Forecasting and renewable resource analysis
- Agricultural technical assistance
- Public outreach and training for energy efficiency

Saving the Green: Energy and Money

As the chart to the right shows, the SCEO has saved the state over \$320 million since 1995 through energy efficiency renewable energy programs and initiatives. The figures were calculated using the projected lifetime energy savings of each project.

PUBLIC SECTOR

State Government	\$56,939,288
School Districts	\$21,096,588
Local Governments	\$13,753,236
Workshops	\$25,919,130
Non-profit	\$1,278,084

Sub-Total	\$118,986,326
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PRIVATE SECTOR

Workshops	\$11,562,343
Transportation	\$4,410,480
Technical Assistance	\$63,116,445
Information Outreach	\$1,476,336

Sub-Total	\$80,565,603
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OTHER

Manufactured Homes	\$122,454,016
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TOTALS

	\$322,005,946
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Did You Know?

36

low-interest loans awarded to-date to state agencies, non-profits, school districts, public colleges and universities for energy efficiency and renewable energy projects

337,681

gallons of motor fuel saved through the truck stop electrification program to-date

Nearly 2,000 people attended 25 workshops, conferences and training events sponsored by the SCEO in 2008-2009



Since 1995, the SCEO has performed 75 energy audits and assessments for both public and private entities

Since 1995, the SCEO has received 68 competitive grants worth

\$6.7 million

392 environmentally friendly, energy efficient EarthCraft homes in South Carolina

Public Institutions Charged with Reducing Energy

Turn to SCEO for Help

In 2008, state legislation was passed that requires state agencies, school districts, public colleges and universities to reduce their energy consumption by at least one percent per year, with an ultimate goal of a 20 percent reduction by 2020. These institutions must deliver a comprehensive energy conservation plan to serve as a road map to achieving that 20 percent reduction. The SCEO, meanwhile, is charged with overseeing the process as the institutions work to meet the requirements.

One problem: there were no concrete details given by legislators on how institutions needed to meet their goals - only that they needed to do so.

So the SCEO got to work.

First, SCEO workers assembled a group of representatives from the different institutions that were subject to the energy-reduction requirements. After meeting, they came away with a program framework, which the SCEO relayed to the legislature in late 2008. The office is required to report back to the General Assembly every year on how things are progressing.

But there was one area the SCEO realized needed to be addressed above all others.

"What we identified from the meetings with our working group was that there needed to be some form of training," said the SCEO's Catherine Vanden Houten.

What struck Vanden Houten and the rest of the SCEO staff was that the job of overseeing the energy reduction didn't always fall to experienced energy managers. Instead, there were cases where school districts or state agencies were so small that they were assigning the responsibilities to employees who didn't normally work in energy management or facilities.

Recognizing this, the SCEO offered four workshops in early 2009 that provided a comprehensive, yet easy-to-understand overview of energy conservation planning in facilities. The turnout was extraordinary - 17 public colleges and universities, 20 state agencies and 49 school districts attended at least one of the workshops.

However, it was clear that still more had to be done to get everyone up to speed. Thus, the SCEO took the initiative to create a sample energy conservation plan for agencies and schools to use as a guide so they could get started on their own plans.

"When we were developing the sample plan, we tried to remain pragmatic and stress only what we thought was essential," said Vanden Houten.

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- Catherine Vanden Houten

The basic elements the SCEO determined as essential? A comprehensive facility description, a well-defined, diverse energy team that would tackle the requirements head-on, and the concrete ways the institution would go about

reducing their energy usage.

Luckily, it's a format that has gained wide acceptance among participating institutions as they work towards meeting their energy reduction goals.

Effort to Make Manufactured Homes More Efficient Sees Success

Historically, manufactured homes have had higher energy bills than comparably-sized site-built homes. While newer homes tend to be more efficient, many on the market today remain the older, more inefficient models.

When the SCEO and some of its partner organizations started talking about the issue in-depth in 2008, they all realized the same thing: if efficient models got more of a market share, it could realize big energy savings for the state overall.

From there, things were set in motion: the SCEO worked with environmental groups and industry representatives to help make financial incentives a reality for buyers looking to purchase energy-efficient manufactured homes.

An ENERGY STAR-qualified
manufactured home is around

30 percent

more efficient than a comparable
standard-code home

And in 2009, that effort bore fruit.

In July, a 100% sales tax exemption and a \$750 income tax credit became effective. Buyers are eligible for both incentives if they purchase an ENERGY STAR® manufactured home, and both credits will be in effect until 2019.

“These incentives represent a significant step forward for the state as a whole, considering that ENERGY STAR manufactured homes represent huge improvements in efficient housing,” said Trish Jerman, manager of policy and programs for the SCEO.

An ENERGY STAR-qualified manufactured home is generally 30 percent more energy efficient in its heating, cooling, and water heating than a comparable standard code home. This increased level of energy efficiency can be met using standard technologies and manufacturing practices by successfully integrating three key



home components:

- An energy-efficient building envelope (e.g., effective insulation, tight construction, and high-performance windows).
- Energy-efficient air distribution (e.g., airtight, well-insulated ducts).
- Energy-efficient equipment (e.g., space heating, space cooling and water heating).
- An ENERGY STAR manufactured home enjoys the benefits of factory-controlled conditions and third-party verification.

Wind Energy Taking Off in South Carolina

For years, the conventional wisdom has been that offshore wind energy is one of South Carolina's most promising sources of renewable energy.

Although a few smaller studies showed potential, a little data and a lot of conjecture hadn't gone very far - that is until some of the Southeast's preeminent wind energy experts, including representatives from the SCEO, took action.

Sensing a common purpose, delegations from the SCEO, Coastal Carolina University, Santee Cooper, Clemson University and North Carolina State University met and exchanged ideas and information. What they determined in their meeting was that they didn't only want to look at how much offshore wind energy potential there might be. They also wanted to come up with ways that energy could be transmitted several miles underwater to the coast, plugged into the grid and reasonably regulated.

So a working group was formed, and it immediately started looking for funding. Fortunately, being a diverse and experienced group has many advantages, and in late 2008 the group was awarded nearly \$500,000 for a three-year federal government grant to begin its work.

With that, the studies that South Carolina so desperately needed finally got underway. Currently, energy data is being gathered using a sophisticated buoy network measuring wind speed, direction and frequency at stations up to three miles out into the ocean. Once the buoy study has finished, a wind platform will be built to observe winds at higher altitudes. If successful, these studies could pave the way for more than 3,000 MW of offshore wind power, which would represent over 10 percent of South Carolina's electricity demand by 2030.

"The SCEO and its partners saw a need to examine the opportunities for offshore wind development and have been successful in obtaining the necessary funding," said Erika Myers, who is coordinating the SCEO's role with the data study. "We've been extremely fortunate to be part of such a great visionary team."

Also a result of the \$500,000 grant, the Regulatory Task Force for Coastal Clean Energy is already hard at work. Made up of government officials, researchers, utility representatives and regulatory experts, the group is working on a series of

regulatory recommendations which could eventually become legislation. It's also looking at ways to streamline the regulation process, making it easier for utilities and consumers to access wind energy.

Thankfully, this initial push to gather more data on wind energy continues to bear fruit.

In May 2009, the SCEO and other partners were awarded over \$100,000 in federal funding to generate market acceptance for offshore wind energy development in South Carolina and Georgia. The project focuses on educating the public about wind energy potential and consequences. It will also provide technical assistance on wind policy options, aid economic development efforts and encourage collaboration between state and regional partners, utilities and trade associations.

Additionally, the SCEO is currently staffing the Wind Energy Production Farms Feasibility Study Committee, a group required by legislation to make recommendations regarding the economic, technical and environmental feasibility of offshore wind farms.

SCEO awarded nearly

\$600,000

in federal grant funding

Through its renewable energy programs and initiatives, the SCEO has worked diligently to increase the number of renewable energy installations in South Carolina. Over the past several years, the number of biomass, solar and landfill gas projects have grown by leaps and bounds due in part to these efforts.

34
biomass projects

9
landfill gas installations

390
solar projects

SCEO Spreads the Word on Going Green

These days, everyone wants to go green.

In response to the overwhelming public interest in green building, purchasing standards and sustainability, the SCEO extended its green outreach efforts to builders, architects, realtors, home buyers and business owners, among others, through workshops, conferences, seminars, training sessions and more.

This past year, the South Carolina General Assembly passed the “Energy Standard Act,” which ad-

opted the widely-used International Energy Conservation Code as the state’s residential building energy efficiency standard. These more modern specifications will make new homes more efficient – saving South Carolina residents energy dollars for generations to come.

Over the past year, the SCEO worked closely with the City of Columbia’s Climate Protection Action Committee (CPAC) to develop the second annual Green is Good for Business conference, which provided businesses and other organizations with new and innovative ways to go green and save energy dollars in the process.

The Energy Office also cosponsored numerous training workshops aimed at realtors, builders and contractors to educate them about green building practices and standards, including certification programs such as EarthCraft and LEED as well as other sustainable building design and construction. The SCEO joined the U.S. Department of Housing and Urban Development to sponsor two conferences focusing on energy efficient low-income housing. Each conference exceeded attendance expectations, attracting a hundred attendees, including community action agencies, builders, architects and engineers.



The SCEO is working closely with state agency officials to develop a green purchasing policy that gives preference to buying greener, more environmentally-conscious products. This includes everything from copiers to refrigerators to recycled paper.

The SCEO also continues its partnership with the South Carolina chapter of the U.S. Green Building Council, which aims to transform the way buildings and communities are designed, built and operated using green building practices.

10

EarthCraft and LEED workshops sponsored by the SCEO over the past year

894

LEED accredited professionals in S.C.

16

Certified LEED buildings in S.C.

Energy Challenges Continue to Ignite Interest

Pardon the pun, but energy has been more than just another hot topic over the last few years. Instead of taking the back burner, it's dominated headlines and the conversations of people across the country. And with no signs of slowing down, it's bound to be one of the signature political and environmental issues for an entire generation.

That being said, it's not surprising that the South Carolina Energy Office had a busy year meeting the ever-evolving demands of its audiences, whether they're coming from business owners, legislators and their staffs, homeowners, facilities managers or state agency officials.

"Energy has never been more critical an issue than it is right now," said John Clark, SCEO's director, who has been working in energy affairs for nearly 30 years.

Over the past year, SCEO staffers gave more than 80 presentations and speeches to various groups

and organizations on renewable energy, energy efficiency and conservation. The office also was contacted over 100 times by local and national media outlets, seeking the expertise and information only it can provide.

Additionally, in early 2009 the SCEO helped plan the National Hydrogen Association's Conference and Hydrogen Expo held in Columbia, the world's largest event showcasing hydrogen power technology. The SCEO's exhibit was in the heart of the South Carolina Pavilion.

Meanwhile the SCEO Web site, www.energy.sc.gov, is the most comprehensive online source of energy information in South Carolina. Over the past year, over 100,000 people looked to SCEO's online portal for information on upcoming events, energy news and information.

"I don't think anything keeps you more well-informed with state energy goings-on than the

Energy Office's Web site," said Elwood Hamilton, the office's public information coordinator.

The office also continues to develop and distribute a quarterly electronic newsletter, The Energy Connection, which is sent to recipients across the country. The free publication keeps subscribers in-the-know on SCEO activities and energy news.

But the SCEO doesn't end its outreach efforts there. It also provides staffing support and expertise for a number of organizations. These include the South Carolina Biomass Council, the South Carolina Solar Council, the Governor's Nuclear Advisory Committee, the Palmetto State Clean Fuels Coalition (PSCFC), the Association of South Carolina Energy Managers (ASCEM) and the South Carolina Chapter of the Energy Services Coalition. All of these organizations provide outreach and awareness with regards to its specific mission – whether it's biomass energy, energy efficiency or alternative fuels.

Quick Facts

SC Biomass Council

Began in 2006
Now has 265 members
www.scbiomass.org

PSCFC

Began in 2004
Now has 55 stakeholders
www.palmettocleanfuels.org

SC Solar Council

Began in 2003
Now has 68 members
www.solarcouncil.org

ASCEM

Began in 1990
Now has 270 members
www.energy.sc.gov

State Reshapes Radioactive Waste Program

Change has been in the air over the last year for the SCEO's Radioactive Waste Disposal Program (RWDP).

Instead of accepting waste from all across the nation, the Barnwell low-level radioactive waste disposal site began exclusively accepting the material from Atlantic Compact states - South Carolina, New Jersey and Connecticut - in 2008. The transition to fewer customers was made per state law and began in 2000.

However, with less waste coming in from fewer states, that meant less revenue for South Carolina, which owns the disposal site. So RWDP Program Director Bill Newberry worked with waste gen-

erators and the disposal site operator to establish a system where regional utilities - not taxpayers - would cover all operating costs.

"It was critical to come up with a plan that would enable the disposal site operation to cover all the operating costs from disposal income alone, without requesting taxpayer funding," said Newberry.

The low-level radioactive waste disposal facility is located on 235 acres in Barnwell County, South Carolina and began operation in 1971. Overall, the RWDP is in charge of approving the release of funds from the Decommissioning Trust Fund for the closure of the disposal site, financial planning for post-closure monitoring and maintenance of the site, and recommending waste-disposal charges and fees. The RWDP also works along with the SC Budget and Control Board to provide funding for a wide variety of projects in support of infrastructure



improvement and industrial recruitment in the Barnwell area.

Additionally, the RWDP works with the Office of State Treasurer to issue rebates for waste generators here in South Carolina. Typically, South Carolina generators - which consist mostly of utilities who own and operate nuclear reactors - are eligible for a 33 percent rebate of any disposal fees paid. From 2008 to 2009, South Carolina generators received disposal rebates totaling \$469,000.

164,477 cubic feet

of waste buried at Barnwell in 1999

11,975 cubic feet

of waste buried at Barnwell in 2009

SC ENERGY OFFICE



SC BUDGET AND CONTROL BOARD